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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Andrew Bright

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EXAMINER

SUTHERS, DOUGLAS JOHN

ART UNIT

PAPER NUMBER

2615

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/804,858	Applicant(s) BRIGHT, ANDREW	
	Examiner Douglas Suthers	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/19/04, 06/27/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Page 13 refers to "power amplifier 18a" which is not found in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

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4. Page 19, line 3 refers to "processor 10" which should most likely read "processor 10a"
5. Page 10, line 4 refers to "calculator 16" which should most likely read "calculator 16a"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 15, 26, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding claim 15, the claim recites "performing the method of claim 1, indicated as being performed by...". It is unclear if the claim is intended to encompass the whole method of claim 1, or merely parts of it.

9. Regarding claims 26 and 28, the claims recite the limitation "said loudspeaker". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 15 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A computer readable storage structure does not constitute statutory subject matter.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claim 26 is rejected under 35 U.S.C. 102(e) as being anticipated by Iwasaki et al. (US 2004/0136540 A1).

13. Regarding claim 26, Iwasaki discloses signal processor, comprising:

means for filtering (figure 1, item 110), responsive to an input electro-acoustical signal (100) and to a parameter signal (from 6), for providing an output signal to said loudspeaker (4) for limiting a vibration displacement of an electro-acoustical transducer;

means for predicting (101 and 102), responsive to said input electro-acoustical signal, for providing a displacement prediction signal (from 102 to 6); and

means for calculating (6), responsive to said displacement prediction signal, for providing the parameter signal.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-25 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. (US 2004/0136540 A1), in view of Johnson et al. (US 7184556 B1).

16. Regarding claim 1, Iwasaki discloses a method, comprising:

providing an input electro-acoustical signal (figure 1, item 100) to a low frequency shelving filter (110) and to a displacement predictor block (101 and 102);

generating a displacement prediction signal (from 102 to 6) by said displacement predictor block based on a predetermined criterion in response to said input electro-acoustical signal and providing said displacement prediction signal to a parameter calculator (6); and

generating a parameter signal (from 6 to 110) by said parameter calculator in response to said displacement prediction signal and providing said parameter signal to

said filter for generating an output signal (to 4) and further providing said output signal to an electro-acoustical transducer (4) for limiting a vibration displacement.

Iwasaki does not expressly disclose the use of notch filter.

Johnson discloses the use of a notch filter (figure 4d) to compensate for a transducer.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the notch filter of Johnson in the filtering of Iwasaki. The motivation for doing so would have been to compensate for resonant frequencies as taught by Johnson. Therefore, it would have been obvious to combine Johnson with Iwasaki to obtain the invention as specified in claim 1.

17. Regarding claim 2, Iwasaki discloses wherein said electro-acoustical transducer is a loudspeaker (4).

18. Regarding claims 3 and 4, although neither Iwasaki nor Johnson expressly disclose the claimed filter transfer function or variables, the examiner takes official notice that such filter design techniques were well known in the art. The motivation to use such would have been to reuse existing filter designs with known properties to reduce engineering and testing costs. Therefore at the time of invention, it would have been obvious to one of ordinary skill in the art to further comprise the transfer function and variables of claims 3 and 4.

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19. Regarding claim 5, Iwasaki discloses further comprising:
generating said output signal by the filter (generated by speaker 4).
20. Regarding claim 6, Iwasaki discloses further comprising:
providing the output signal to said electro-acoustical transducer (4).
21. Regarding claim 7, Iwasaki discloses wherein the output signal is amplified using
a power amplifier (2) prior to providing to said electro-acoustical transducer.
22. Regarding claim 8, Iwasaki discloses wherein the displacement prediction signal
is provided to a peak detector (figure 4 finds peak cutoff frequency) of the parameter
calculator.
23. Regarding claim 9, Iwasaki discloses wherein after the generating the
displacement prediction signal, the method further comprises: generating a peak
displacement prediction signal (S5 or S7 say if displacement is ok) by the peak detector
and providing said peak displacement prediction signal to a shelving frequency
calculator of the parameter calculator (paragraph [0080]).
24. Regarding claim 10, Iwasaki discloses further comprising: generating a shelving
frequency signal (paragraph [0080]) by the shelving frequency calculator based on a
predetermined criterion and providing said shelving frequency signal to a sensitivity and

coefficient calculator of the parameter calculator for generating, based on said shelving frequency signal, the parameter signal (paragraph [0080]).

25. Regarding claim 11, Iwasaki discloses wherein the input electro-acoustical signal is a digital signal (paragraph [0061]).

26. Regarding claims 12-14, although neither Iwasaki nor Johnson expressly disclose the claimed filter transfer function or variables, the examiner takes official notice that such filter design techniques were well known in the art. The motivation to use such would have been to reuse existing filter designs with known properties to reduce engineering and testing costs. Therefore at the time of invention, it would have been obvious to one of ordinary skill in the art to further comprise the transfer function and variables of claims 12-14.

27. Regarding claim 15, Iwasaki discloses the method of claim 1 as above. Although they do not expressly disclose the use of a computer readable medium or storage structure, it was well known that general-purpose computers could be used to perform signal processing. The motivation for using such would have been cheaper, faster implementation and reuse of resources. It was also well known that computers readable medium come in a variety of forms and store executable code. Therefore it would have been obvious to one of ordinary skill in the art to perform the operations on a computer via a program.

28. Regarding claim 16, Iwasaki discloses a signal processor, comprising:

a low frequency shelving filter (figure 1, item 110), responsive to an input electro-acoustical signal (100) and to a parameter signal (from 6), for providing an output signal to said loudspeaker (4) for limiting a vibration displacement of an electro-acoustical transducer;

a displacement predictor block (101 and 102), responsive to said input electro-acoustical signal, for providing a displacement prediction signal (from 102 to 6); and

a parameter calculator (6), responsive to said displacement prediction signal, for providing the parameter signal.

Iwasaki does not expressly disclose the use of notch filter.

Johnson discloses the use of a notch filter (figure 4d) to compensate for a transducer.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the notch filter of Johnson in the filtering of Iwasaki. The motivation for doing so would have been to compensate for resonant frequencies as taught by Johnson. Therefore, it would have been obvious to combine Johnson with Iwasaki to obtain the invention as specified in claim 16.

29. Regarding claim 17, Iwasaki discloses wherein the parameter calculator block comprises: a peak detector (figure 4 finds peak cutoff frequency), responsive to the displacement prediction signal, for providing a peak displacement prediction signal (S5

or S7 say if displacement is ok); a shelving frequency calculator (figure 4), responsive to the peak displacement prediction signal, for providing a shelving frequency signal (paragraph [0080]); and a sensitivity and coefficient calculator, responsive to said shelving frequency signal, for providing the parameter signal (paragraph [0080]).

30. Regarding claims 18 and 19, although neither Iwasaki nor Johnson expressly disclose the claimed filter transfer function or variables, the examiner takes official notice that such filter design techniques were well known in the art. The motivation to use such would have been to reuse existing filter designs with known properties to reduce engineering and testing costs. Therefore at the time of invention, it would have been obvious to one of ordinary skill in the art to further comprise the transfer function and variables of claims 18 and 19.

31. Regarding claim 20, Iwasaki discloses wherein the output signal is provided to said electro-acoustical transducer directly or said the-output signal is amplified using a power amplifier (2) prior to providing to said electro-acoustical transducer (4).

32. Regarding claim 21, Iwasaki discloses wherein the input electro-acoustical signal is a digital signal (paragraph [0061]).

33. Regarding claims 22-24, although neither Iwasaki nor Johnson expressly disclose the claimed filter transfer function or variables, the examiner takes official

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notice that such filter design techniques were well known in the art. The motivation to use such would have been to reuse existing filter designs with known properties to reduce engineering and testing costs. Therefore at the time of invention, it would have been obvious to one of ordinary skill in the art to further comprise the transfer function and variables of claims 22-24.

34. Regarding claim 25, Iwasaki discloses wherein said electro-acoustical transducer is a loudspeaker (4).

35. Regarding claim 27, Iwasaki discloses wherein said means for filtering is a low frequency shelving (110), said means for predicting is a displacement predictor block (101 and 102), and said means for calculating is a parameter calculator (6).

Iwasaki does not expressly disclose the use of notch filter.

Johnson discloses the use of a notch filter (figure 4d) to compensate for a transducer.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the notch filter of Johnson in the filtering of Iwasaki. The motivation for doing so would have been to compensate for resonant frequencies as taught by Johnson. Therefore, it would have been obvious to combine Johnson with Iwasaki to obtain the invention as specified in claim 27.

36. Regarding claim 28, Iwasaki discloses an apparatus, comprising:

an electro-acoustical transducer (4); and

a signal processor, comprising:

a low frequency shelving filter (110), responsive to an input electro-acoustical signal (110) and to a parameter signal (from 6), for providing an output signal to said loudspeaker (4) for limiting a vibration displacement of said electro-acoustical transducer;

a displacement predictor block (101 and 102), responsive to said input electro-acoustical signal, for providing a displacement prediction signal (from 102 to 6); and

a parameter calculator (6), responsive to said displacement prediction signal, for providing the parameter signal.

Iwasaki does not expressly disclose the use of notch filter.

Johnson discloses the use of a notch filter (figure 4d) to compensate for a transducer.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the notch filter of Johnson in the filtering of Iwasaki. The motivation for doing so would have been to compensate for resonant frequencies as taught by Johnson. Therefore, it would have been obvious to combine Johnson with Iwasaki to obtain the invention as specified in claim 28.

37. Regarding claim 29, Iwasaki discloses further comprising:

a power amplifier (2), for amplifying said output signal prior to providing to said electro-acoustical transducer.

38. Regarding claim 30, Iwasaki discloses wherein said electro-acoustical transducer is a loudspeaker (4).

Conclusion

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas Suthers whose telephone number is (571)272-0563. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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